REMARKS

Claims 26 and 29-50 are pending in this application. Claims 27 and 28 have been canceled without prejudice and their subject matter has been incorporated in amended independent claim 26. Claims 26 and 29 have been amended. Applicants reserve the right to pursue the original claims and other claims in this application and in other applications. A petition for an extension of time is being filed concurrently herewith.

Claims 26 and 32 stand rejected under 35 U.S.C. § 103 as being unpatentable over Cranage et al. (U.S. Patent No. 3,347,270) ("Cranage"). Reconsideration is respectfully requested.

The claimed invention relates to a device for handling pressurized gas. As such, amended independent claim 26 recites a "device for handling pressurized gas" comprising *inter alia* "first and second valves" located within a housing and "an actuator arranged to initially open said first valve for flowing gas in a first direction . . . and to subsequently open said second valve for flowing gas in an axial direction . . . said axial direction being the same as said first direction." Amended independent claim 26 also recites that the actuator comprises "a piston unit slidably located within said actuator, said piston unit further comprising an upper seat of said first valve, said upper seat being in communication with an upper portion of said pressurization orifice." Dependent claim 32 recites that the gas is oxygen.

Cranage relates to a pressure equalizing flow control valve that can be connected to an oxygen tank in a welding assembly for industrial use. According to Cranage, a pilot valve element 46 is "adapted to engage the pilot valve seat 43 and close the pilot valve passage 44." (Col. 3, lines 70-73; Figure 1).

Cranage does not disclose all limitations of amended independent claim 26. Cranage does not teach or suggest "an actuator arranged to initially open said first valve for flowing gas in a first direction at a first flow rate through a pressurization orifice," much less an actuator comprising "a piston unit slidably located within said actuator, said piston

unit further comprising an upper seat of said first valve, said upper seat being in communication with an upper portion of said pressurization orifice," as amended independent claim 26 recites. Cranage teaches a valve for an oxygen welding tank. Cranage uses a single seat 43 that corresponds to a big valve and that can easily deform over time and affect the gas pressurization. For at least these reasons, withdrawal of the rejection of claims 26 and 32 is respectfully requested.

Claims 29, 34-37 and 39-44 stand rejected under 35 U.S.C. § 103 as being unpatentable over Cranage. Reconsideration is respectfully requested.

Independent claim 34 recites a surge prevention dual-path valve for pressurized oxygen comprising *inter alia* "a housing having an inlet connected to a source of high pressure oxygen" and "a first valve located within said housing, said first valve comprising an upper seat in communication with an upper portion of a pressurization orifice" and "a second valve . . . comprising a lower seat in communication with a lower portion of said pressurization orifice." Independent claim 34 also recites "a piston unit arranged to initially move said upper seat in a first direction to open said pressurization orifice, and to subsequently move said lower seat in an axial direction to open said flow path, said axial direction being the same as said first direction."

Independent claim 39 recites a method of operating a surge prevention dual-path valve by "moving at least a portion of a piston unit in an axial direction for about 0.25 to about 1.5 seconds to cause gas to flow through a pressurization orifice" and "subsequently moving said piston unit in said axial direction to cause gas to flow through a second valve."

The subject matter of claims 29, 34-37 and 39-44 would not have been obvious over Cranage. Cranage does not teach or suggest "an actuator arranged to initially open said first valve for flowing gas in a first direction at a first flow rate through a pressurization orifice" or a "piston unit slidably located within said actuator . . . comprising an upper seat of said first valve, said upper seat being in communication with an upper portion of said

pressurization orifice," as amended independent claim 26 recites. Cranage does not teach or suggest a "surge prevention dual-path valve for pressurized oxygen" comprising *inter alia* "a housing having an inlet connected to a source of high pressure oxygen" and upper and lower seats "in communication with an upper portion of a pressurization orifice," as independent claim 34 recites. Cranage also fails to teach or suggest a method of operating a surge prevention dual-path valve by "moving at least a portion of a piston unit in an axial direction for about 0.25 to about 1.5 seconds to cause gas to flow through a pressurization orifice of a first valve at a first flow rate," as independent claim 39 recites.

Cranage teaches a valve for an oxygen welding tank that uses a single seat 43 which corresponds to a big valve and which can easily deform over time and affect the gas pressurization. In addition, the first passageway of Cranage is not controlled for time delay, much less for about 0.25 to about 1.5 seconds, as in the claimed invention. In fact, any time delay control in Cranage would be impractical between the metal of the stem 34 and the elastomer of the valve element 41. Additionally, Cranage specifically emphasizes that "[B]ecause the pilot valve element 46 has only a minor surface area subjected to the high pressure at the inlet opening 16, the pilot valve element 46 can be easily moved against such pressure." (Col. 5, lines 63-66). Thus, in Cranage, "to open the flow control valve, the knob 66 is easily turned" and cannot be controlled for time delay. (Col. 5, lines 56-58). For at least these reasons, withdrawal of the rejection of claims 29, 34-37 and 39-44 is respectfully requested.

Claims 30, 31, 38, 45 and 46 stand rejected under 35 U.S.C. § 103 as being unpatentable over Cranage in view of Klinger-Lohr et al. (U.S. Patent No. 3,211,419) ("Klinger-Lohr"). Reconsideration is respectfully requested.

Klinger-Lohr relates to a "shut-off valve" with a sealing element "adapted to provide a fluid-tight seal" between a piston-like head and a restricting portion of a valve housing. (Col. 1, lines 9-18). Klinger-Lohr teaches that the sealing element "is invariably compressed at least when the valve member is in sealing position and properly seals the valve member against the housing even if it should wear away by friction and should

become corroded or would shrink under the action of conveyed fluids." (Col. 1, lines 58-66).

The subject matter of claims 30, 31, 38, 45 and 46 would not have been obvious over Cranage in view of Klinger-Lohr. Specifically, the Office Action fails to establish a *prima facie* case of obviousness. Courts have generally recognized that a showing of a *prima facie* case of obviousness necessitates three requirements: (i) some suggestion or motivation, either in the references themselves or in the knowledge of a person of ordinary skill in the art, to modify the reference or combine the reference teachings; (ii) a reasonable expectation of success; and (iii) the prior art references must teach or suggest all claim limitations. See e.g., In re Dembiczak, 175 F.3d 994, 50 U.S.P.Q.2d 1614 (Fed. Cir. 1999); In re Rouffet, 149 F.3d 1350, 1355, 47 U.S.P.Q.2d 1453, 1456 (Fed. Cir. 1998); Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc., 75 F.3d 1568, 1573, 37 U.S.P.Q.2d 1626, 1630 (Fed. Cir. 1996).

In the present case, Cranage and Klinger-Lohr, whether considered alone or in combination, fail to teach or suggest all limitations of amended independent claim 26 and of independent claims 34 and 39. Klinger-Lohr does not teach or suggest a "device for handling *pressurized gas*" (claim 26), or a "surge prevention dual-path valve for *pressurized oxygen*" comprising *inter alia* "a housing having an inlet connected to a source of *high pressure oxygen*" (claim 34) or a "method of operating a surge prevention dual-path valve by "moving at least a portion of a piston unit in an axial direction for about 0.25 to about 1.5 seconds to cause *gas* to flow through a pressurization orifice of a first valve at a first flow rate" (claim 39) (emphasis added). As noted above, Klinger-Lohr relates to a "shut-off valve" with a sealing element "adapted to provide a fluid-tight seal" between a piston-like head and a restricting portion of a valve housing, and not to a device and method for handling pressurized gas, such as pressurized oxygen or nitrous oxide, as in the claimed invention. In fact, the crux of Klinger-Lohr is eliminating the "physical and/or chemical action of the fluids caus[ing] a more rapid loosening of the sealing element" (col. 1, lines 28-31), and not a surge prevention valve for pressurized gas, as in the claimed invention.

As noted above, Cranage fails to teach or suggest first and second valves for flowing gas in a first direction at a first flow rate, and in an axial direction at a second flow rate, wherein "said axial direction being the same as said first direction," as amended independent claims 26 and independent claim 34 recite. Cranage also fails to teach or suggest a method of operating a surge prevention dual-path valve by "moving at least a portion of a piston unit in an axial direction for about 0.25 to about 1.5 seconds to cause gas to flow through a pressurization orifice of a first valve at a first flow rate," as independent claim 39 recites. For at least these reasons, the Office Action fails to establish a *prima facie* case of obviousness, and withdrawal of the rejection of claims 30, 31, 38, 45 and 46 is respectfully requested.

Claims 33 and 47-50 stand rejected under 35 U.S.C. § 103 as being unpatentable over Cranage in view of Bathe et al. (U.S. Patent No. 6,125,846) ("Bathe"). Reconsideration is respectfully requested.

Bathe relates to a nitric oxide delivery system that provides "protection against the inadvertent inclusion of NO_2 in the therapeutic gas administered to the patient." According to Bathe, one of the functions of the delivery system is "to provide a purge upon start up . . . that clears the regulator and conduits of any NO_2 that may have formed during the prior idle period of the system." Bathe also teaches that a detector "determines the start-up and may automatically carry out the purge cycle or may cause a prompt that is visual or audible to remind the user to carry out the purge cycle manually." When the delivery of NO to the patient is discontinued, Bathe teaches that "the system can, again, sense the termination or cessation of the therapy and automatically shut off the supply of NO containing gas at the source or provide an audible or visual prompt to remind the user to shut off the supply of the NO containing gas manually."

The subject matter of claims 33 and 47-50 would not have been obvious over Cranage in view of Bathe. As noted above, Cranage fails to teach or suggest all limitations of amended independent claim 26. Cranage also fails to teach or suggest a method of operating a surge prevention dual-path valve by *inter alia* "causing oxygen to flow through

said dual-path valve at said second flow rate, through a pressure regulator and then to an operative device," as independent claim 47 recites. Cranage is also silent about "moving at least a portion of a piston unit in an axial direction to cause nitrous oxide to flow through a pressurization orifice of a first valve at a first flow rate; subsequently moving said piston unit in said axial direction to cause nitrous oxide to flow through a second valve at a second flow rate, said second flow rate being greater than said first flow rate; and causing nitrous oxide to flow through said dual-path valve at said second flow rate, through a pressure regulator and then to an operative device," as independent claim 49 recites. Cranage teaches a valve for an oxygen welding tank, and not a pressure regulator for attachment to an operative device. Cranage also uses only a single seat 43 that corresponds to a big valve and that can easily deform over time and affect the gas pressurization.

Similarly, Bathe is silent about the limitations of amended independent claim 26 and of independent claims 47 and 49. As acknowledged by the last Office Action, the only limitation of the claimed invention taught by Bathe is the use of "a specific type of gas, such as nitrous oxide." (Office Action at 5). Accordingly, for at least these reasons, the Office Action fails to establish a *prima facie* case of obviousness, and withdrawal of the rejection of claims 33 and 47-50 is respectfully requested.

A marked-up version of the changes made to the claims by the current amendment is attached. The attached page is captioned "**Version with markings to show changes made.**"

Allowance of the application with claims 26 and 29-50 is solicited.

Dated: April 3, 2003

Respectfully submitted,

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Version With Markings to Show Changes Made

26. (Twice Amended) A device for handling pressurized gas, said device comprising:

a housing having an inlet, an outlet, and a flow path from said inlet to said outlet;

first and second valves located within said housing; and

an actuator arranged to initially open said first valve for flowing gas in a first direction at a first flow rate through a pressurization orifice, and to subsequently open said second valve for flowing gas in an axial direction at a second flow rate through said device, said second flow rate being greater than said first flow rate, said axial direction being the same as said first direction, said actuator comprising a piston unit slidably located within said actuator, said piston unit further comprising an upper seat of said first valve, said upper seat being in communication with an upper portion of said pressurization orifice.

29. (Amended) The device of claim [28] 26 further comprising a lower cup-shaped valve element located within said housing, said lower cup-shaped valve element including a lower seat of said second valve, said lower seat being in communication with a lower portion of said pressurization orifice.